CLEANUP

SITE 9 OFFSHORE SAMPLING FOR VOCs

LEAD ACTIVITY
Naval Air Station (NAS) North Island

STATUS
Completed

MISSION
Assess the potential migration of contaminants into the San Diego Bay

DESCRIPTION
NAS North Island demonstrated the innovative PETREX passive soil vapor survey technique at Site 9 to delineate chlorinated VOC migration pathways in the groundwater and possible discharges into San Diego Bay. The PETREX sampling technique is a remote sensing, near-surface screening method that directly collects and identifies in one analysis, a large range of chlorinated, aliphatic, and aromatic contaminant vapors migrating to the surface from the soil or groundwater beneath each collection point. PETREX surveys provide rapid reconnaissance screening of soils and groundwater for VOCs and semi-volatile organic compounds (SVOC) and can be used to establish the extent of contamination at a site and to guide well placement and soil boring programs. By screening suspected groundwater migration pathways using PETREX samplers, NAS North Island was able to focus confirmation drilling and sampling activities on known areas of contamination, thereby, substantially reducing the overall cost of the investigation.

The PETREX samplers provided by Northeast Research Institute (NRI) consist of two ferromagnetic wire collectors. Each collector is coated with an activated carbon sorbent and housed in a resealable glass vial. At Site 9, samplers were laid out in a grid that covered onshore and offshore portions of areas of concern. PETREX sampling tubes were placed onshore in fill material and offshore by commercial divers in sediments beneath 10 to 55 feet of water. Samplers were installed about 16 inches below the surface and left in place for just over 2 weeks. This time integrative collection period provides PETREX with the capability to collect and identify lower levels of less volatile compounds at greater depths through tighter soil conditions.
After collection, samples were shipped to NRI's laboratory for analysis using mass spectrometry. The results obtained from the PETREX samplers are reported in ion flux counts, rather than concentrations, because of the time-integrative nature of the sample collection method. Flux counts are related to concentrations, but cannot be extrapolated directly.

Results of the survey at Site 9 showed that contaminants in the groundwater are discharging in very low concentrations to the San Diego Bay, and are being reduced from highly chlorinated, toxic forms to less chlorinated, less toxic forms. In addition to defining low-concentration migration pathways, the data also helped to confirm the conceptual model for the site.
The PETREX technology has been licensed to W.L. Gore and Associates.

BIBLIOGRAPHY

- **Fact Sheet**:Petrex Passive Soil Gas and Sediment Vapor Sampling (NELPFS-7.PDF,396 KB)
- Naval Air Station North Island. Site 9 Expanded Sampling and Analysis Plan. May 1995.
- Northeast Research Institute. Final Report findings of the PETREX Survey of Site 9, Naval Air Station North Island. February 1996.

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